



Newsletter | March 2026 | Vol. 3 | Issue No. 03

Elemental

LEARNING FROM **FIRST PRINCIPLES**



BEEHIVES

Catacombs Of Curiosity



THE AWAKENING OF THE HIVE

The morning light filtered through the hive in a soft, amber glow, warming the tiny brood bees as they stirred from their cozy cells. One small bee rubbed her eyes and looked up at the ceiling of her world. "Are we the only ones awake?" she whispered to her sisters.

Her voice was lost in a sudden, rhythmic thrumming. A worker bee landed nearby, her wings still shimmering with the dust of the outside world. The young ones flapped their wings frantically, desperate for a story from the 'Great Beyond'. The worker bee looked at them with a tired but proud smile.

"You lot are particularly bright-eyed today," she noted. "Stay sharp, stick together, and ask me everything. Today, you will learn what it took to build this kingdom".

As the broods stepped out, they were amazed by the sight around them. Their world was a vast, shimmering stretch of perfect hexagons, stacked together without a single clumsy gap.





ARCHITECTURE MASTERED OVER TIME

"Why is everything... six-sided?"

one of them asked, tracing the edge of a wall. "It wasn't always so," the worker bee replied. "The process of evolution shaped us, too. Mother Nature taught us to trust our instincts. Our ancestors once built round cells, but circles left gaps where cold air crept in, and space was wasted. Through ages of trial and error, these forms shifted;

triangles, squares, rhomboids, each reducing those gaps. At last, we arrived at the hexagon: a shape whose walls press tightly together, strengthened by forces within and outside, leaving no empty space. Nature's masterpiece, it uses the least wax to store the most honey, maximizing space while minimizing perimeter." A few of the broods circled the hive to cast a full look over this miniature marvel, of which they all were a part.

One of them poked her stinger into a space nearby and noticed the walls felt strange. Strong yet flexible. The worker bee caught hold of this curiosity and landed near her. She explained that they were a blend of wax and propolis, a resin gathered from trees. "It's our medicine and our mortar," she said. "It seals cracks, waterproofs our home, and kills harmful microbes. It's why our inner walls feel so soft compared to the rugged exterior."



THE SECRET OF HARMONY IN THE HIVE

Nearby, a group of bees worked in total silence, yet with perfect coordination. One of the broods wondered who was giving the orders.

"That is Swarm Intelligence," the worker bee explained. "We don't need a general or a blueprint. We follow simple local rules, responding to the scent of fresh wax, the temperature of a sister's body, and the touch of an antenna. We use our own bodies as measuring tapes to ensure every cell is the right size. You see, kids, Mother Nature might have made us small, but she didn't forget to give us a heart of iron that is filled with grit and determination. We don't always rely on our own ability, rather the hive is a collective unit, a family, where every role is defined, and every work is carried out without much complaint."

THE CODED COMMUNICATION

Suddenly, a bee at the entrance began to move in a strange, looping figure-eight, her abdomen vibrating intensely. It looked like a flash mob had broken out. The broods were both amazed and confused about this strange ritual.

"The Waggle Dance," the worker bee explained. "She's telling us a story of a meadow miles away. Every shimmy tells us the direction relative to the sun; every second of the waggle tells us the distance. She is sharing the location and the quality of the treasure she found. This is our way of communicating the location of our finds."

"But why doesn't she just bring it all back herself?" one of them asked.

"That's because it's a job for the whole team," the worker bee replied. "Foragers carry nectar in their 'honey stomachs,' mixing it with enzymes before passing it to us. Then, we use our gut, which is home to special tiny microbes like *Gilliamella apicola* and *Snodgrassella alvi*, to turn complex sugars into simple, digestible honey".



THE ART OF TEMPERATURE CONTROL

As the sun climbed higher, one of the broods felt a breeze. She noticed a difference in temperature between the inside and outer layers of the hive. She was curious to understand the reason behind this difference. A worker bee popped her head out of a nearby cell and spoke.

"Let me take this one. The workers inside the hive constantly flap their wings to maintain their own body temperatures. As we are cold-blooded in kind, we need to regulate our body heat during summers and preserve it during winters." She motions the broods to look at the entrance.

Dozens of bees stood at the opening, their wings a blur of motion.

“*Fanning," the worker bee said. "In the summer, we push hot air out and pull cold air in through evaporation. In the winter, we do the opposite. We vibrate our wing muscles without flying to generate heat, keeping our home and our little ones warm.* **”**



PILLARS OF THE ECOSYSTEM

The brood carefully listened and marveled at the technique of temperature regulation. Just then, a forager landed, covered in bright golden dust. "She looks like she's wearing a golden drape," one of them whispered.

"That is pollen," the worker bee explained. "We are brown when we leave, but we return yellow, orange, or red depending on which flower we visited. By carrying this dust from flower to flower, our kind helps humanity with one of its most important tasks: pollination. Through this, we help the human world grow its food. Without us, many plants would simply vanish".

The jubilant mood of the broods was suddenly interrupted. A group of bees escorted a stinger-less male, a drone, out into the cold. The worker bee's voice grew serious.

"Nature is kind, but she is also firm. The drones serve one purpose: reproduction. When their time is up, the hive must move on to survive". "And the queen?" they asked, a little worried.



QUEEN BEE

POWER OF THE ROYAL JELLY.

"She is our heartbeat," the worker bee said. "If she dies, we immediately choose a new larva and feed her 'Royal Jelly', the finest food in our collection. This diet triggers epigenetic regulation, making her grow larger, capable of laying thousands of eggs, and being healthy enough to produce a good amount of pheromones. These pheromones serve as an invisible map that guides us home".





EXPLORING THE HIVE- THE BLUE PRINT OF A LIVING CITY

The worker bee then took the broods on a tour of the hive. The center was the Nursery, where all the young ones lived. The next layer was the Ring, where pollen was stored for easy feeding. Beyond that was the Attic, the honey reserve, sealed with wax to preserve it. The lowest part was the Basement, housing the larger drone bees.

"Is it always this perfect?" one of them asked.

SURVIVAL AGAINST THE ODDS

"We always strive for the highest standard of organization. However, things aren't always fine and dandy. Predators like Varroa mites seek us for their survival. They sneak into our brood cells and steal their nourishment, stick to our bodies and suck out our life force, and spread diseases that bring down the whole colony. And then of course... there are the humans".

"Are they monsters too?"

"They are complicated," the worker bee sighed. "They study our architecture to build their own houses. The nectar we produce is used as food and medicine. The wax also has many uses. Yet, their treatment can be harsh. Chemicals and pesticides reduce our chances of collecting pollen and can be fatal. They have commercialised honey production, forcing us into confined spaces and stressful conditions. Urbanisation and industrialisation have taken away the vegetation we depend on for survival."

As one of the broods looked back at her hexagonal home, she didn't just see wax and honey anymore. She saw a legacy of solidarity, sacrifice, and survival. As dusk arrived, all the residents buzzed back into their cells, ready for another day of life in the hive.





PRINCIPAL'S MESSAGE

The Quiet Discipline of Success

Dear Students and Parents,

In an era defined by glowing screens and hurried schedules, the timeless wisdom of "early to bed and early to rise" remains one of the most powerful habits for a healthy and successful life. While modern life often encourages us to stay connected late into the night, research consistently confirms that adequate sleep is the true engine of potential. It strengthens memory, sharpens concentration, and balances emotions, ensuring that a well-rested mind can learn faster, think clearer, and make better decisions.

Beyond the physical benefits of rest, waking up early offers a distinct and precious gift: uninterrupted time. In the quiet hours before the rush of the world begins, the mind is fresh and the air is calm. This "golden hour" provides the perfect opportunity to read, reflect, exercise, or simply prepare for the day with intention rather than panic. Students who master this disciplined sleep routine invariably display greater confidence, better academic performance, and a more positive outlook on the challenges ahead.

As a school community, let us embrace this principle by trading late-night distractions for meaningful rest. By beginning each day with energy and purpose, we build the foundation for excellence. Remember, success is not only achieved through what happens in the classroom; it begins with the quiet, consistent discipline of our daily routines.

With love and blessings,
Dr. Rinku Sarangi



The Ocean's Gentle Warning

I still remember my first real trip to the seaside. To my eyes, the ocean was the most magnificent, thrilling thing I had ever seen! While my parents were listing safety rules, all I could hear was the roar of the waves calling me to play. I let my excitement pull me a little too far, ignoring their warnings. In a heartbeat, a powerful wave knocked me off my feet and pulled me into deep water. I was terrified, certain I was going under, when my father's strong arms suddenly lifted me to safety.

Shaken and coughing up seawater, I learned a lesson I've never forgotten. Nature commands a respect that excitement can't overshadow. That day, the ocean taught me to be mindful of my surroundings and to listen to wise warnings. It was a thrilling adventure that ended with a splash of reality—and the important understanding that our own safety is the most precious thing we have.

— Neelam Darakhshan





Grade XII Science Orientation

The academic year began with an insightful orientation for Grade XII Science students, introducing them to the syllabus, exam framework, and expectations ahead. With a strong focus on discipline, time management, and consistent preparation, the session also included valuable inputs from faculty along with key school guidelines and the importance of parental support.

Grade IX–X Orientation Day

The campus came alive as students stepped into their secondary school journey, accompanied by proud parents and a sense of new beginnings. Guided by inspiring words from the CEO, Principal, and Headmistress, students gained clarity, confidence, and motivation to embrace the path ahead.

Middle School Orientation (VI–VIII)

The Orientation Programme for Classes VI–VIII marked the beginning of an exciting academic phase, filled with curiosity and meaningful interactions. As students connected with mentors and peers, they gained a clear understanding of the journey ahead, stepping forward with confidence and enthusiasm.

Pre-Primary Orientation 2026–27

Our youngest learners and their families were warmly welcomed into a nurturing environment where first classroom experiences met meaningful conversations. More than just an introduction, the programme marked the beginning of a strong partnership focused on building confidence, creativity, and a lifelong love for learning.



Extending Care Beyond Classrooms

In a heartfelt initiative, Grade IX students visited an orphanage, sharing moments of joy, laughter, and genuine connection. Through games and interactions, they experienced the true value of empathy, kindness, and giving back, making it a deeply enriching and memorable day.



Pre-Primary Graduation Day

Graduation Day was a proud and emotional milestone, celebrating the growth and achievements of our young learners. As Pre-Primary stars and students of UKG and Grade II shone on stage, the event beautifully captured their journey of confidence, transformation, and new beginnings.



Grade IX Picnic

After their annual exams, Grade IX students headed to Hill Side Park & Resort for a well-deserved break filled with fun, laughter, and bonding. Surrounded by scenic views and engaging activities, the day became a perfect celebration of friendships and unforgettable memories.



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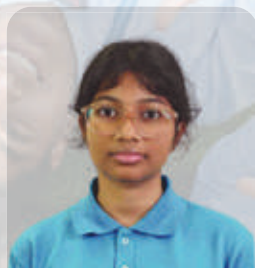
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